



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/575,018

05/04/2007

Horst Keller

2584SG-3

7058

22442

7590

11/10/2009

SHERIDAN ROSS PC
1560 BROADWAY
SUITE 1200
DENVER, CO 80202

EXAMINER

KHATRI, PRASHANT J

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

11/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,018	Applicant(s) KELLER ET AL.	
	Examiner PRASHANT J. KHATRI	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6 and 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/6/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In response Amendments/Arguments filed 6/29/2009. Claims 1-3, 5-6, and 9-14 are pending. Claims 4, 8, and 15 were cancelled. Claims 1, 5, and 14 were amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-6, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Battigelli et al. (**US 5601628**) in view of Jensen et al. (**US 5614449**) and Vignesoult et al. (**US 6284684**) with evidence from Trabbold et al. (**WO 02/070417**), and Audren et al. (**US 4928898**).

3. Battigelli et al. disclose a method for the production of mineral wool and mineral wool produced thereof. Prior art discloses a material composition comprising common mineral-based compounds found within comparable silica-based insulation materials (**col. 9, lines 1+**). Examiner takes the position that the values for the F/5g as shown by prior art within the table of less than 3 will therefore have a lower density. As shown by prior art, fiberization occurs at temperatures of at least 1200°C, therefore Examiner takes the position that the fusion point of the material would therefore occur at a

temperature higher than 1200°C, which would meet the parameters of the present claim. It is noted, however, that prior art discloses that the formation of beads is dependent on viscosity (**col. 4, lines 35+**) and the pressure of the blower within the apparatus (**col. 8, lines 42+**). Examiner takes the position that the reduction of beads is an optimization feature and may be adjusted by varying the pressure of the blower. It is noted that the process is an internal centrifuging process in a spinner (**abstract**).

However, prior art is silent to the use of a binding, the exact claimed composition, and fiber diameters produced, compression ratio, and density.

4. Jensen et al. disclose a product comprising vitreous fibers wherein conventional binder materials may be used in an amount from 0.5 to 4% (**col. 4, lines 59+**). It is noted that the vitreous fibers have a composition similar to that which is presently claimed. Further, prior art discloses a fiber diameter from about 3.0 microns to 4.0 microns (**col. 7 table at the top of the page**).

5. Vignesoult et al. disclose a mineral wool composition comprising the following:

SiO ₂	39-55%,
Al ₂ O ₃	16-27%,
CaO	3-35%,
MgO	0-25%,
Na ₂ O	0-15%,
K ₂ O	0-15%,
R ₂ O (Na ₂ O + K ₂ O)	10-17%,
P ₂ O ₅	0-3%,
Fe ₂ O ₃	0-15%,
B ₂ O ₃	0-8%,
TiO ₂	0-5%,

6. The disclosed ranges as shown above encompass or equal the presently claimed ranges. Prior art further discloses the composition may include 2% to 3% of unanalyzed impurities. Concerning the alkali/earth alkali ratio, Examiner notes that Ex.

Art Unit: 1794

2 in Table 1 shows that the ratio is less than 1 (**col. 4, lines 30-31**). Examiner takes the position that the unanalyzed impurities are equivalent to the materials known as "other" as Applicant is silent to the exact composition of the "other" material. As shown by prior art in Table 1, the material exhibits satisfactory levels of biosolubility. Examiner takes the position that the material would therefore meet the standard presently claimed in claim 13. Regarding the thermal conductivity presently claimed in claim 6, Examiner takes the position that since the material resulting from the composition disclosed by Vignesoult et al. in addition to a binding agent and processed by the methods disclosed by Battigelli et al. would inherently meet the presently claimed surface weight ranges as the composition and density would meet the present claims. Concerning the standards that are presently claimed in claim 13, Examiner takes the position that if the materials meet the elements that are presently claimed, the material would therefore meet the standards that are presently claimed. Given that the resulting material would be comprised of elements within the presently claimed ranges with a binding material in the claimed range, Examiner takes the position that the surface weight would thereby be the same as that which is presently claimed.

7. As evidenced by Trabbold et al., a product of finer fibers can be less dense than one of coarse fibers resulting in same insulating values. Furthermore, as shown by Trabbold, the material disclosed by prior art has a density of 9 kg/m³ as a result of the processing. Examiner regards the presently claimed density as dependent on the composition and further the processing orifices which as shown by prior art effect the gram weight (**pp. 17-21; specifically disclosures on Tables 3 and 5**). Therefore, one

Art Unit: 1794

of ordinary skill in the art would have known to produce materials that vary in density depending on the application.

8. Audren et al. disclose a compression coiling machine for rolling mineral fiber material. Prior art discloses the apparatus is used to produce strips of mineral fiber having densities not exceeding 30 kg/m³ (**col. 4, lines 23+**). Further, prior art discloses the fiber material is disposed onto aluminized paper (**col. 4, lines 21+**). Examiner takes the position that aluminum foil in the broadest sense is simply a layer of aluminum and in this case, the layer of aluminum is disposed onto a surface of paper. It is also noted that prior art discloses a compression ratio of about 4.5. Examiner takes the position that the compression ratio is dependent on the thickness of the mineral fiber and may be adjusted accordingly for maximizing the amount of material shipped.

9. Note that while Jensen et al. does not disclose all the features of the present claimed invention, Jensen et al is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the use of binders in mineral wool materials in order to decrease the brittleness of the material and in combination with the primary reference, discloses the presently claimed invention.

10. However, note that while Audren et al. do not disclose all the features of the present claimed invention, Audren et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently

Art Unit: 1794

claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the maximum density needed for high compression ratios in order to maximize the amount of material shipped while preventing material from becoming loose and in combination with the primary reference, discloses the presently claimed invention. Thus it would have been obvious to one of ordinary skill in the art to apply the compression process disclosed by Audren et al. to the process of centrifuging disclosed by Battigelli et al. to a composition disclosed by Vignesoult et al. and Jensen et al. to yield a product that is strong, lightweight, and able to carry out the needed insulation properties to comparable products.

11. All of the elements were known within the art in individual disclosures; however each is silent to containing all the elements presently claimed. The motivation to combine Jensen et al. to Battigelli stems from the fact that binding agents allow for an increase in strength and decrease in brittleness when the material undergoes compression for shipping. Furthermore, it is noted that the increase in strength decreases the amount of failed products and thereby increasing consumer satisfaction. Therefore, it would have been obvious to one of ordinary skill in the art to apply a binder disclosed by Jensen et al. into the materials disclosed by Battigelli. Additionally, the formation of beads during processing is known within the art to be the cause of product failure. Examiner notes that Battigelli discloses the formation of beads may be reduced by optimizing blower pressure. Therefore, it would have been obvious to one of ordinary skill in the art to adjust the blower pressure to minimize the formation of beads

Art Unit: 1794

and thereby reduce product failure. Vignesoult et al. disclose a mineral wool composition that encompasses the presently claimed ranges. The motivation to use the composition into the process disclosed by Battigelli is that the composition of Vignesoult yields a material that has satisfactory biosolubility and considered to be less environmentally and physiologically harmful to lifeforms. Thus, it would have been obvious to include this composition to create an environmentally friendly material in conjunction with a binding material disclosed by Jensen et al., which improve strength for shipping purposes to the processes disclosed by Battigelli.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Battigelli et al. in view of Bernard et al., Jensen et al., and Vignesoult et al. as applied to claim 1 above, and further in view of Balcerowiak et al. (**Journal article**).

13. Battigelli et al., Bernard et al., Jensen et al., and Vignesoult et al. disclose the above; however, prior art is silent to the use of an organic binder.

14. Balcerowiak et al. disclose the use of urea-phenol-formaldehyde binder materials for mineral wool insulation (**Introduction**).

15. The use of urea-based materials as binding agents for mineral wools is well-known throughout the art. The motivation to apply a urea-based material as the binding agent is that the material is less environmentally toxic compared to other materials yet still providing the consumer with a good thermal stability and decrease brittleness of the insulation material. Thus, it would have been obvious to one ordinary skill in the art to

Art Unit: 1794

apply the binding agent disclosed by Balcerowiak et al. to decrease the brittleness of the material and provide good thermal stability.

Response to Arguments

16. Applicant's arguments, see pp. 5-6, filed 6/29/2009, with respect to the rejection of claims 6, 8-9, 11, and 14-15 under 35 USC 112, 2nd paragraph have been fully considered and are persuasive. The rejection of the above claims has been withdrawn. Examiner acknowledges the arguments and previous discussion during the interview dated 5/28/2009.

17. Applicant's arguments filed 6/29/2009 have been fully considered but they are not persuasive. Applicant asserts that the prior art is silent to the present features of a minimum compression ratio to a density. However, the present claim appears to recite that a minimum ratio corresponds to an upper gross density up 30 kg/m³ and 50 kg/m³. Given that it appears to be at least a minimum of 2:1 and up to 50 kg/m³, the present disclosures would meet the present claims and as such, the rejections are maintained.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1794

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is (571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 1794

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

PRASHANT J KHATRI
Examiner
Art Unit 1794